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(30) Priority:

(43) Date of application publication: 22.03.89

(84) Designated contracting states:

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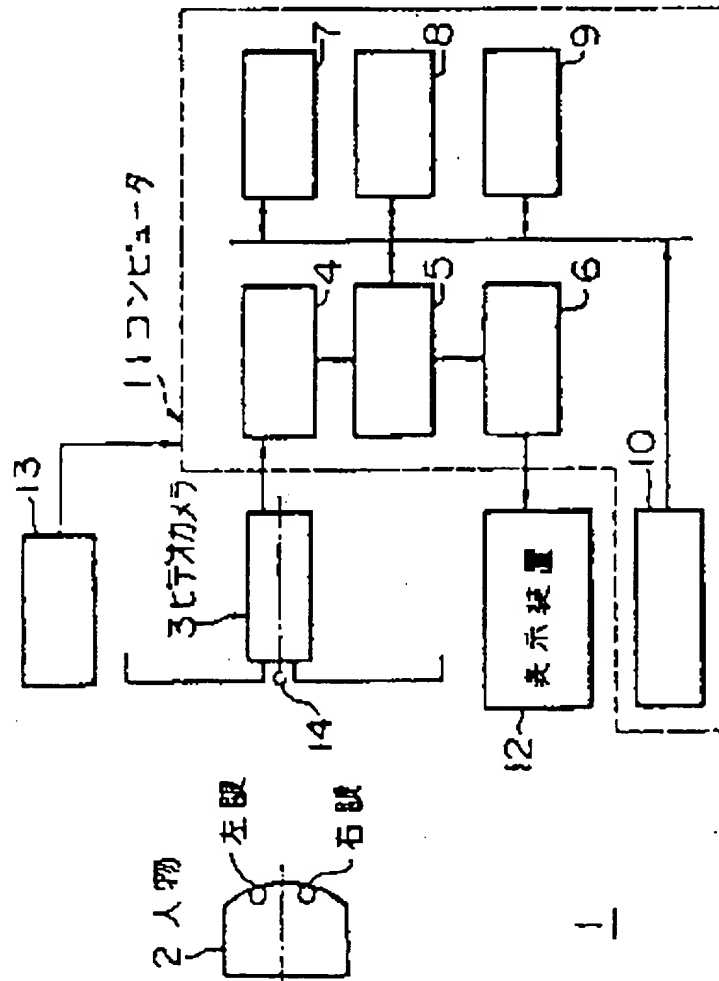
(54) PRODUCTION OF SYNTHETIC IMAGE FOR SPECTACLE PUT-ON SIMULATION DEVICE

(57) Abstract:

PURPOSE: To reduce the difference of impressions between a person who actually puts on his/her spectacles and a synthetic image of the person and the spectacle frame, by displaying said synthetic image on a display device based on a synthetic image of an unspectacled person displayed on a display device.

CONSTITUTION: The frame synthetic magnifying power and the synthetic position are calculated for production of a synthetic image of a person 2 and a spectacle frame via a CPU 7, a spectacle frame data memory 8 and a program memory 9. Thus synthetic image data on the person 2 and the frame is obtained and this synthetic image is displayed on a display device 12 via a D/A converter 6. Thus an optional picture size is correctly synthesized and the person 2 is photographed in a picture size in response to the purpose of application. Then the spectacle frame is synthesized with a correct position, size and tilt so that the difference of impressions can be reduced between a spectacted synthetic image of the person 2 and the person 2 who actually puts on his/her spectacles.

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(22) Application date: 02.10.92

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(43) Date of application publication: 28.04.94

(84) Designated contracting states:

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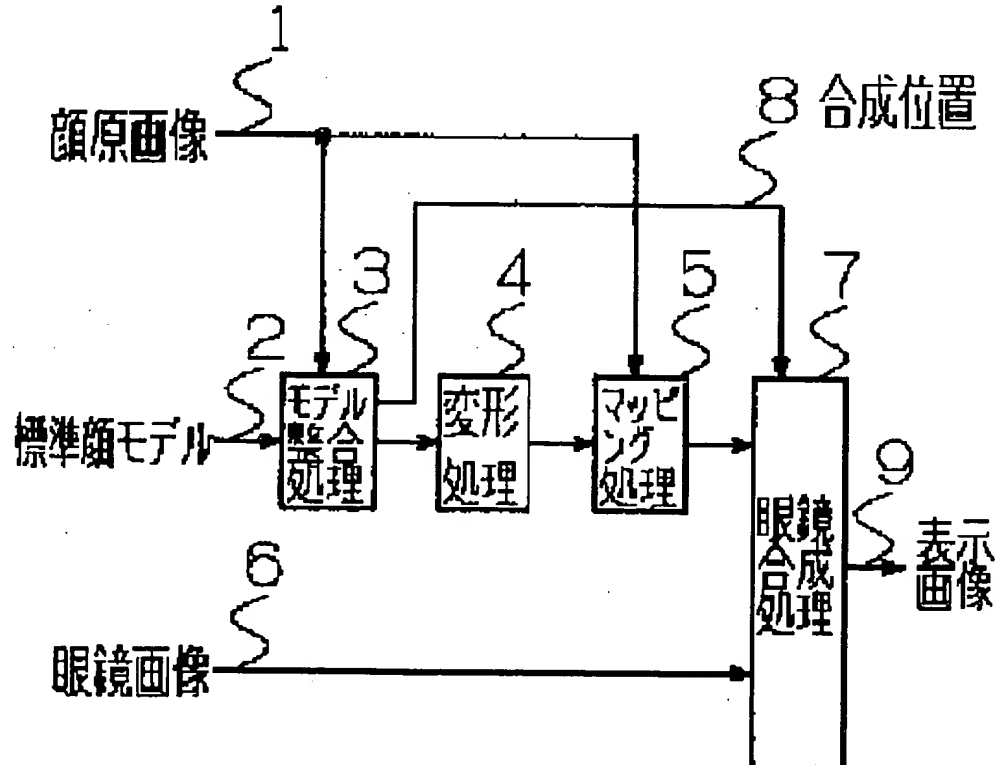
(54) SPECTACLES FITTING
SIMULATION DEVICE

(57) Abstract:

PURPOSE: To obtain the spectacles fitting simulation device which dispenses with adjustment of a spectacles synthesizing position, and can execute simulation of expression of a face and its direction, etc.

CONSTITUTION: A standard face model 2 is matched to a face original image 1 in a model matching processing 3, and a deformation processing 4 is added in order to change facial expression, and a direction of a face. Also, in a mapping processing 5, data of the face original image 1 is subjected to mapping with respect to the deformed face model. A face image whose expression and direction are varied, generated by the abovementioned processings is synthesized with a spectacles image 6 in a spectacles synthesizing processing 7 and displayed as a display image 9. A spectacles synthesizing position 8 in the spectacles synthesizing processing 7 is calculated from positions of an eye and an ear, obtained by the model matching processing 3.

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(84) Designated contracting states:

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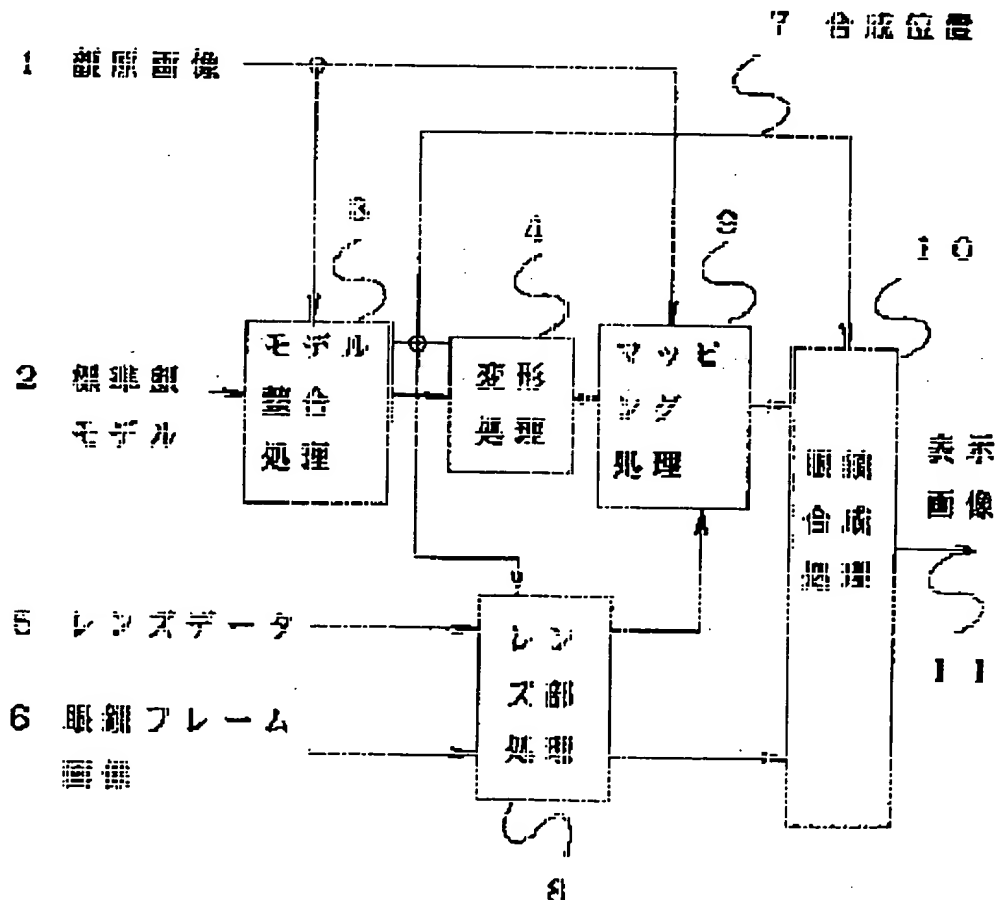
(54) GLASSES WEAR SIMULATION
DEVICE

(57) Abstract:

PURPOSE: To provide the glasses wear simulation device which takes refraction due to lenses of glasses into consideration and can change the color of lenses of glasses and can simulate the expression, the direction, or the like of user's face.

CONSTITUTION: A standard face model 2 is matched to a face original picture 1 by a model matching processing 3 and is subjected to deforming processing 4 for the purpose of changing the expression or the direction of the face. A lens part processing 8 calculates the refractive index by the value of lens data 5, and a mapping processing 9 maps data of the face original picture 1 on the deformed face model in consideration of the refractive index calculated by the lens part processing 8. The face picture which is generated by these processings and has the expression and the direction changed is synthesized with a glasses frame picture 6 by a glasses synthesizing processing 10, and the result is displayed as a display picture 11.

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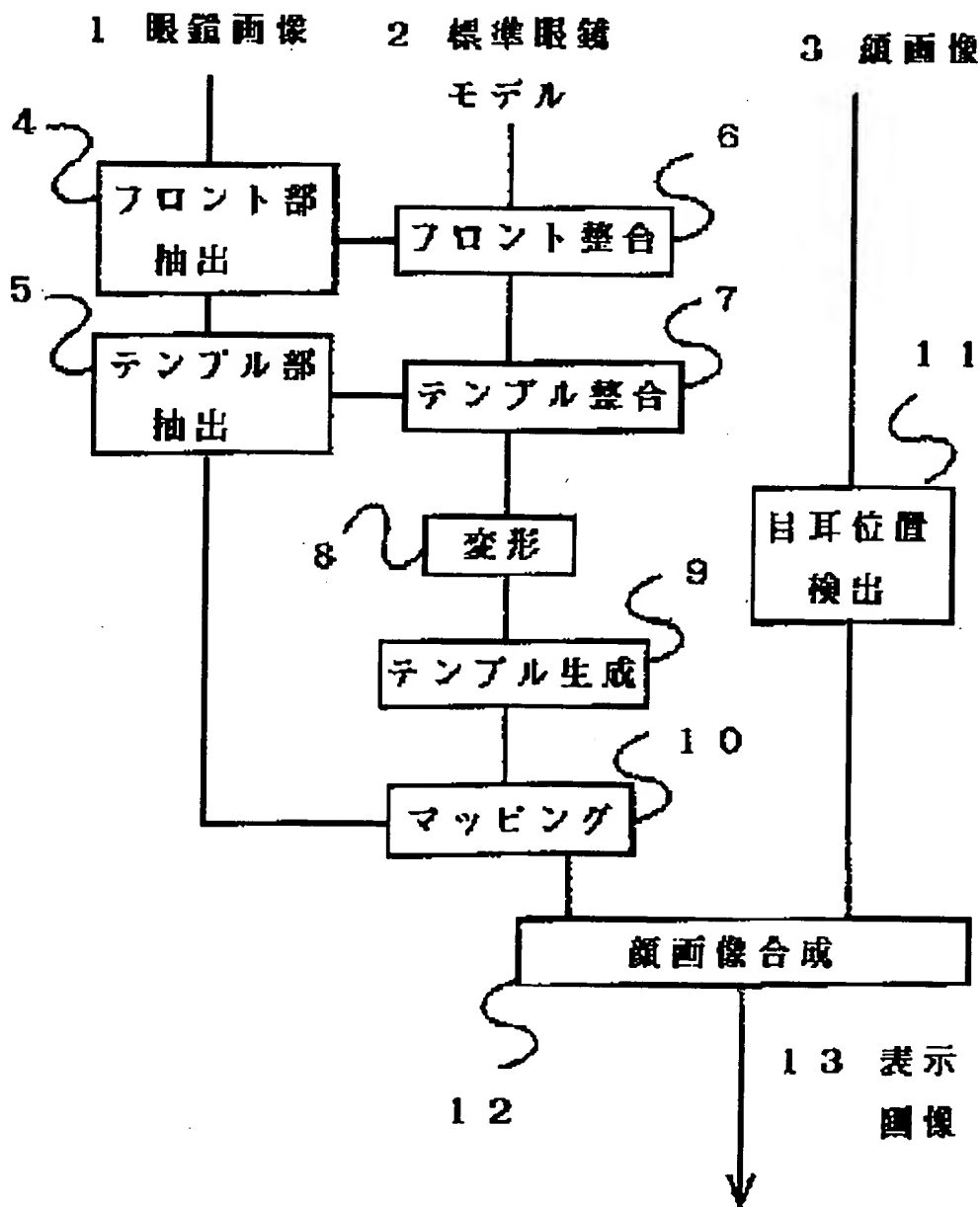
(54) SIMULATION DEVICE FOR
SPECTACLES WEARING

(57) Abstract:

PURPOSE: To obtain a simulation device for spectacles wearing which enables a user to see displays which are variously changed in angle only by inputting one image of spectacles.

CONSTITUTION: While the spectacles are slanted a bit horizontally, one spectacle image 1 is inputted and after the front part and a temple part of one side are extracted, a standard spectacle model 2 is matched with the spectacle image 1. After the matched standard spectacle model 2 is deformed 8 to a customer's desired angle, the other temple which is not inputted is generated by utilizing the right-left symmetry of reflection of the spectacles. Pixel data of the spectacle image 1 are mapped 10 with the temple and put together with a face image 3 which is separately inputted to obtain display images 13 of the face wearing the spectacles while the angle is variously changed.

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(84) Designated contracting states:

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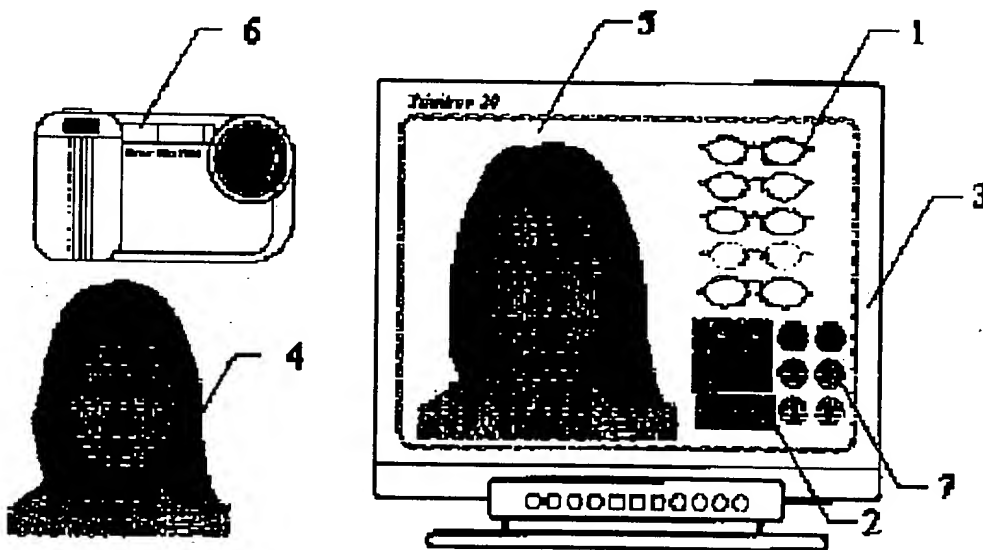
(54) METHOD FOR SELECTING AND SIMULATING GLASS FRAME OR THE LIKE AT THE TIME OF PURCHASING IT

(57) Abstract:

PROBLEM TO BE SOLVED: To provide a method enabling a purchaser to select, design and create individualistic, charming and original glasses, sun glasses or the like matched with his (or her) scene of values or sensitivity without purchasing a commodity one-sidedly supplied by a maker or a store.

SOLUTION: At the time of purchasing glasses, a consumer 4 participates the selection of glasses by using integrated software produced by plugging the designs 1 of glasses and material colors/patterns 2 in photograph synthesis application software and a personal computer 3 and simulatively fits a selected glass frame to a face picture photographed by a digital camera 6. While selecting, combining and simulating a design, a material color, a name, a decorative accessory, a lens color, and concentration, the consumer 4 creates the design of original glasses, sun glasses or the like and a commodity is produced based on the design.

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(84) Designated contracting states:

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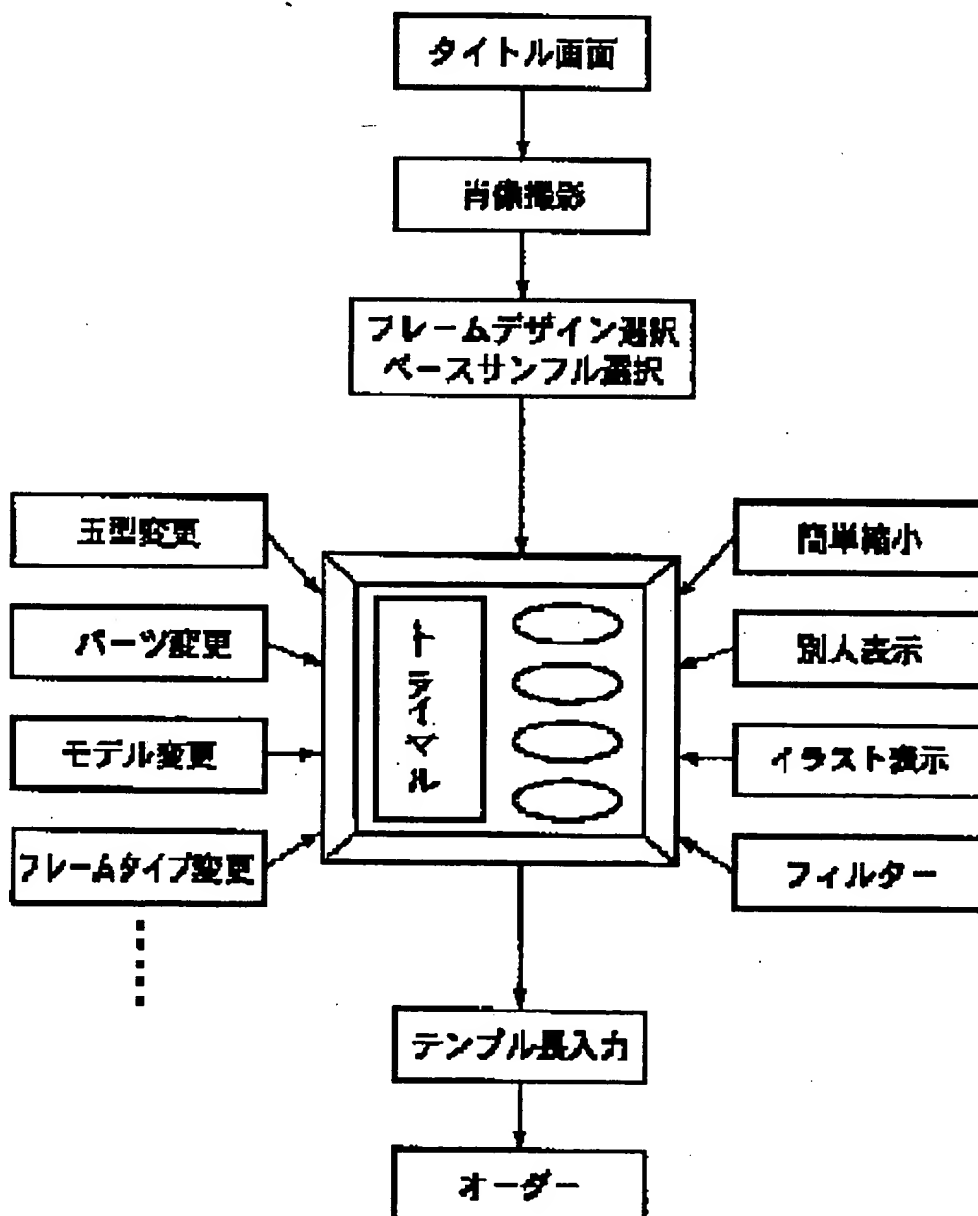
**(54) SPECTACLE WEARING
SIMULATION METHOD**

(57) Abstract:

PROBLEM TO BE SOLVED: To attain further proper simulation without letting a person wearing spectacles feel any sense of incompatibility or discomfort.

SOLUTION: This is a spectacles wearing simulation method for simulating a spectacles wearing state by connecting a spectacle picture with a portrait image on a display screen under computer control. At the time, not the portrait picture of the person wearing the spectacles but the portrait picture of another person, or a portrait picture prepared by illustrating the portrait of the person wearing the spectacles based on the portrait, or a picture prepared by operating filter effect application processing to the portrait picture of the person wearing the spectacles, or a portrait picture prepared by reducing the portrait picture of the person wearing the spectacles is used as the portrait picture.

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